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TRANSMITTAL FORM

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Filing Date	November 30, 2001
First Named Inventor	Andre Liem
Art Unit	3729
Examiner Name	Anthony D. Tugbang
Attorney Docket Number	STL10241

ENCLOSURES *(Check all that apply)*

- [ ] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
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Transmittal Of Appeal Brief

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Seagate Technology LLC		
Signature			
Printed name	Derek J. Berger		
Date	June 13, 2005	Reg. No.	45,401

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Signature			
Typed or printed name	Zeina Smith	Date	06/13/2005

Practitioner's Docket No. STL10241 ***PATENT***

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Andre Liem et al.

Application No.: 09/998,123
Filed: 11/30/2001
For: Rail Design For High Bandwidth Actuator

Group No.: 3729
Examiner: Anthony D. Tugbang

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TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 41.37)

1. Transmitted herewith, is the APPEAL BRIEF in this application, with respect to the Notice of Appeal filed on April 12, 2005.

2. STATUS OF APPLICANT

This application is on behalf of other than a small entity.

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 C.F.R. § 41.20(b)(2), the fee for filing the Appeal Brief is:

other than a small entity	$500.00
Appeal Brief fee due	**$500.00**

4. EXTENSION OF TERM

The proceedings herein are for a patent application and the provisions of 37 C.F.R. § 1.136 apply.

5. TOTAL FEE DUE

The total fee due is:

Appeal brief fee	$500.00
Extension fee (if any)	$0.00
TOTAL FEE DUE	**$500.00**

6. FEE PAYMENT

Authorization is hereby made to charge the amount of $500.00 to Deposit Account No. 19-1038.

A duplicate of this transmittal is attached.

7. FEE DEFICIENCY

If any there is an additional Fee Deficiency charge Deposit Account No. 19-1038.

Date: June 13, 2005

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Andre Y. Liem et al.		
Serial No.:	09/998,123	Examiner:	A. Tugbang
Filed:	November 30, 2001	Group Art Unit:	3729
Title:	Rail Design for High Bandwidth Actuator		
Docket No.:	STL10241		

APPEAL BRIEF

This appeal is filed in response to the final Office action mailed January 12, 2005 (hereinafter "the Final Action").

(1) ***Real party in interest***

The real party in interest is Seagate Technology LLC.

(2) ***Related appeals and interferences***

There are no related appeals or interferences.

(3) ***Status of Claims***

Pending claims 1-11 and 13-18 stand rejected and are hereby appealed

(4) ***Status of Amendments after Final***

No amendments were filed after final rejection.

(5) ***Summary of Invention***

As described in the specification from page 10, lines 3-19 and depicted in FIGs. 1 and 7, one embodiment of the present invention may be summarized as a method for making a data storage device (such as 100) having an actuator system (such as 300) designed with an arm (such as 310) having first and second longitudinal edges. The

method comprises steps of a) determining that the actuator system (such as 300) is designed with a spring-mass structure characterized by a first bending mode having a first natural resonant frequency and a second bending mode having a second natural resonant frequency; b) modifying the arm (such as 310) so as to raise the first and second natural resonant frequencies; and c) assembling the actuator system (such as 300) into the data storage device (such as 100) adjacent a storage medium (such as 200). In step (b) arm modification is performed by providing a first stiffening element (such as 315) protruding from the first longitudinal edge of the arm (such as 310). The first stiffening element (such as 315) is configured to maximize a rise of the first natural resonant frequency of the actuator system (such as 300) while minimizing a rise of the second natural resonant frequency of the actuator system (such as 300).

As described in the specification from page 10, lines 3-19 and depicted in FIGs. 1 and 7, another embodiment of the present invention may be summarized as a method for making a data storage device (such as 100) having an actuator system (such as 300) designed with an arm (such as 310) having first and second longitudinal edges, where the arm (such as 310) is further being characterized by first and second bending modes, and where the first bending mode is characterized by a first natural resonant frequency and the second bending mode being characterized by a second natural resonant frequency. The method comprises steps of: a) determining a likelihood that the arm (such as 310) will become resonant in the first bending mode during device operation; b) determining a likelihood that the arm (such as 310) will become resonant in the second bending mode during device operation; c) providing a stiffening element (such as 315) on the arm (such as 310) so as to raise one of the natural resonant frequencies to a substantially greater degree than the other of the natural resonant frequencies, where the arm (such as 310) and stiffening element (such as 315) are formed from a single, continuous piece of material; and d) assembling the actuator system (such as 300) into the data storage device (such as 100) adjacent a storage medium (such as 200).

Claim 15 recites "a step for tuning a first natural resonant frequency of an actuator arm while minimizing change to a second natural resonant frequency of the

arm." As described in the specification from page 10, lines 3-19 and depicted in FIGs. 1 and 7, this "step" is performed by steps and structure including providing a first stiffening element (such as 315) protruding from a first longitudinal edge of the arm (such as 310), where the first stiffening element (such as 315) is configured to maximize a rise of the first natural resonant frequency of the actuator system (such as 300) while minimizing a rise of the second natural resonant frequency of the actuator system (such as 300).

(6) *Statement of Rejection as to Appealed Claims*

(1) Claims 6, 9-11, 13 and 14 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to be supported by the written description of the claimed device.

(2) Claims 1-6, 9-11, 13 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,408,372 to Karam, II (hereinafter "Karam").

(3) Claims 15-18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by WIPO publication 99/09544 (hereinafter "the WIPO document").

(4) Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being obvious over Karam.

(7) *Argument*

Rejection (1):

Claims 6, 9-11, 13 and 14 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to be supported by the written description of the claimed device.

The Office suggests that the claim limitation "the first stiffening element is and the arm are formed from a single, continuous piece of material" is new matter. Applicant respectfully traverses this rejection.

The claims satisfy the written description requirement if the specification upon which they are based "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Ralston Purina Co. v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting *In re*

Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)). The instant specification clearly does so with respect to claims 6, 9-11, 13 and 14 for reasons set forth below.

On page 10, lines 5-7 of the originally filed specification, it is disclosed that "rails 315 may be integrally formed along the arm 310 or they may be attached to the arm 310 by any conventional method such as adhesive or welding." The Office takes the position on page 3 of the Final Action that "'integrally' can simply mean that the actuator arm and stiffening elements are formed as being *together*, or *united, with one another*, and not as one, single continuous piece of material." [Italics, underlining in original.] However, to construe "integrally" as such here is to remove the term from its context in the instant specification.

First, "integrally formed along with" suggests more than mere togetherness, unity or the act of being with one another. In fact, it clearly means that the two elements were formed together as a single unit. Put another way, as one of ordinary skill in the art would understand, they are formed as a single, continuous piece of material.

Second, note that "integrally formed along with" is positioned in the instant application in contrast to other means for attachment: "or they may be attached to the arm by any conventional method . . ." The Office's overly broad construction of "integrally" here would clearly encompass conventional attachment methods. It would exceedingly clear to one of ordinary skill in the art that "integrally" here means formed from a single continuous piece of material rather than two elements attached by conventional fastening means. As such, it is clear that the Office has improperly and overly broadly construed "integrally" here. Since the specification makes clear that "integrally formed along with" cannot mean mere attachment, it must instead mean that the rails are formed from a single, continuous piece of material along with the arm.

Reversal of the rejection of claims 6, 9-11, 13 and 14 is respectfully requested.

Rejection (2):

Claims 1-6, 9-11, 13 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,408,372 to Karam.

Claim 1 requires a step of "modifying the arm so as to raise the first and second natural resonant frequencies." The Office glibly suggests on page 4 that Karam's stiffening element 52 "maximizes, or raises to a substantial degree, the resonant frequencies at locations or areas on the arm where the first stiffening elements are not formed." In the Advisory action mailed March 31, 2005, the Office further cites to col. 10, lines 24-35 of Karam in support of this assertion.

Citation of this text demonstrates a lack of understanding as to the difference between resonant oscillation amplitude and the inherent resonant frequencies of a system. Karam discloses that elements 52 serve as "micro-stiffeners" and suggests that they lessen vibration, but in no way is it suggested that elements 52 raise a natural resonant frequency. In fact, Karam states exactly the opposite: "reduction in the amplitude or resonant oscillation is obtained *without the usual associated increase in the frequency of the resonant mode.*" In other words, Karam explicitly contradicts the Office's reading of the reference.

Reversal of the rejection of claim 1 and allowance thereof are respectfully requested.

Claims 2-6 depend from claim 1 and are allowable for at least this reason. Some of these claims are allowable for additional reasons as well.

As to claim 4, while the Office suggests on page 3 of the action that the Karam's stiffening elements 52 can be read as a "rail." This is simply not the case, as any reasonable definition of "rail" requires at the very least a longitudinal element. Karam defines "microstiffeners" as "infinitesimal distortions" which cannot reasonably be said to be elongated in the manner required by the term "rail."

Claim 5 requires that the stiffening element be planar. Karam's arcuate dimples 52 are clearly incapable of defining a plane, much less one that is perpendicular to the arm.

For at least these reasons, reversal of the rejections of claims 2-6 and allowance thereof are respectfully requested.

Claim 9 requires a step of "providing a stiffening element on the arm so as to raise one of the natural resonant frequencies to a substantially greater degree than the other of the natural resonant frequencies." Again, Karam makes no disclosure whatsoever of the relative degrees to which dimples 52 raise the natural resonant frequencies of two bending modes, as discussed above with respect to the rejection of claim 1. As such, Karam cannot be said to anticipate claim 9; reversal of this rejection and allowance claim 9 are therefore respectfully requested.

Claims 10, 11, 13 and 14 depend from claim 9 and are allowable for at least this reason. Some of these claims are allowable for additional reasons as well.

As to claim 11, Karam's dimples 52 clearly cannot be reasonably construed as "rails" as set forth above in the response to the rejection of claim 4.

For at least these reasons, reversal of the rejection of claims 10, 11, 13 and 14 and allowance thereof are respectfully requested.

Rejection (3):

Claims 15-18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by WIPO publication 99/09544 (hereinafter "the WIPO document").

Claim 15 recites the limitation "a step for tuning a first natural resonant frequency of an actuator arm while minimizing change to a second natural resonant frequency of the arm." This claim thus invokes 35 U.S.C. § 112, sixth paragraph. Whatever the result may have been under prior PTO practice, the PTO must construe functional limitations in accordance with the corresponding method disclosed in the specification when examining patents. In re Donaldson, 29 U.S.P.Q.2d 1845 (Fed. Cir. 1994) (en banc). Applicant's corresponding process and structure, at the least, includes providing a first stiffening element protruding from a first longitudinal edge of the arm (such as 310), where the first stiffening element is configured to maximize a rise of the

first natural resonant frequency of the actuator system while minimizing a rise of the second natural resonant frequency of the actuator system. The WIPO document does not disclose this process. For at least this reason, claim 15 is believed to be allowable over prior art, and reversal of the rejection is respectfully requested.

The Office states on page 6 of the Final Action that proper 6th paragraph analysis requires only that the prior art have "an equivalent step-plus-function." However, in this case the steps disclosed by the WIPO document and the present application are not remotely similar, much less equivalent. The WIPO document discloses forming an arm from a type of material with stiffening properties, while the present method discloses providing a protruding stiffening element. Because these two methods cannot reasonably be construed as equivalent, the WIPO document does not anticipate claim 15. Reversal of the rejection and allowance of claim 15 are respectfully requested.

Claims 16-18 depend from claim 15 and are similarly allowable.

Rejection (4):

Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being obvious over Karam.

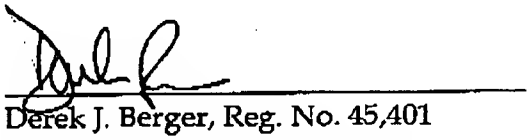
Claims 7 and 8 depend from allowable claim 1 and are themselves allowable for at least this reason. Reversal of the rejection of claims 7 and 8 is respectfully requested.

Conclusion:

Appellant maintains that present claims identify the features and benefits of the present invention clearly and concisely. The present invention as claimed is not taught or suggested by the prior art of record or any combination thereof. Therefore, it is respectfully submitted that the appealed claims are in condition for allowance, and favorable action is respectfully requested.

Respectfully submitted,

Seagate Technology LLC
(Assignee of the Entire Interest)



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Appendix of Appealed Claims

1. A method for making a data storage device having an actuator system designed with an arm having first and second longitudinal edges, the method comprising steps of:

a) determining that the actuator system is designed with a spring-mass structure characterized by a first bending mode having a first natural resonant frequency and a second bending mode having a second natural resonant frequency;

b) modifying the arm so as to raise the first and second natural resonant frequencies, modifying step (b) further comprising a step of:

b1) providing a first stiffening element protruding from the first longitudinal edge , the first stiffening element being configured to maximize a rise of the first natural resonant frequency while minimizing a rise of the second natural resonant frequency; and

c) assembling the actuator system into the data storage device adjacent a storage medium.

2. The method of claim 1 in which modifying step (b) further comprises a step of:

b2) providing a second stiffening element on the second longitudinal edge.

3. The method of claim 2 in which the first and second stiffening elements are identical.

4. The method of claim 1 in which the first stiffening element comprises a rail extending along the first longitudinal edge.

5. The method of claim 1 in which the arm is generally planar and defines a first plane, and in which the first stiffening element is generally planar and defines a second plane, the second plane being generally orthogonal to the first plane.

6. The method of claim 1 in which the first stiffening element is and the arm are formed from a single, continuous piece of material.

7. The method of claim 1 in which the determining step (a) and the modifying step (b) are performed upon a prototype of the designed actuator, in which assembling step (c) further comprises steps of:

c1) copying the modified prototype to construct a production version of the designed actuator that is similar to the modified prototype; and

c2) assembling the production version of the designed actuator into the data storage device.

8. The method of claim 7 in which the stiffening element has a cross-section which is asymmetric.

9. A method for making a data storage device having an actuator system designed with an arm having first and second longitudinal edges, the arm further being characterized by first and second bending modes, the first bending mode being characterized by a first natural resonant frequency and the second bending mode being characterized by a second natural resonant frequency, the method comprising steps of:

a) determining a likelihood that the arm will become resonant in the first bending mode during device operation;

b) determining a likelihood that the arm will become resonant in the second bending mode during device operation;

c) providing a stiffening element on the arm so as to raise one of the natural resonant frequencies to a substantially greater degree than the other of the natural resonant frequencies, the arm and stiffening element being formed from a single, continuous piece of material; and

d) assembling the actuator system into the data storage device adjacent a storage medium.

10. The method of claim 9, in which the stiffening element protrudes from one of the longitudinal edges of the arm.

11. The method of claim 10 in which the stiffening element comprises a rail extending along the one longitudinal edge of the arm.

13. The method of claim 10 in which the modifying step (c) further comprises a step of:

c2) providing a second stiffening element on the other of the longitudinal edges of the arm.

14. The method of claim 13 in which the first and second stiffening elements are identical.

15. A method of making a data storage device, comprising steps of:

a) a step for tuning a first natural resonant frequency of an actuator arm while minimizing change to a second natural resonant frequency of the arm; and

b) assembling the actuator arm into the data storage device adjacent a storage medium.

16. The method of claim 15 in which step (a) further comprises a step of:

a1) modifying the arm so as to raise the first natural resonant frequency.

17. The method of claim 16 in which modifying step (a1) further comprises a step of:

a1A) providing a stiffening element on a longitudinal edge of the arm.

18. The method of claim 15 in which step (a) further comprises a step of:

a1) providing a generally elongate stiffening element on the arm, the stiffening element having an asymmetric cross-section.